REMARKS

Reconsideration of this application, as amended, is respectfully requested.

This application has been reviewed in light of the Office Action of the United States Patent and Trademark Office dated January 31, 2005. Claims 9-13 and 17-21 are currently pending in the application. As indicated above, Claims 9 and 17 have been amended, and Claims 1-8 and 12-16, which had previously been withdrawn from consideration, have been cancelled without prejudice.

In the Office Action, the Examiner has rejected Claims 9-13 and 17-21 under 35 U.S.C. §112, first paragraph, as not being enabling, Claims 9-13 and 17-21 under 35 U.S.C. §112, second paragraph, as being incomplete, and as being indefinite, Claims 9-12 and 17-20 under 35 U.S.C. §102(e) as being anticipated by *Tong et al.* (U.S. 6,744,744 B1), and Claims 13 and 21 under 35 U.S.C. §103(a) as being unpatentable over *Tong* in view of *Azaren et al.* (U.S. 5,357,249). Additionally, the Examiner has objected to the drawings and the specification.

With regard to the Examiner's objection to the drawings, the Examiner asserts that references numbers 301, 302, 303, 304, 305, 306, 313, 314, 316, 323, 324, 326, 333, 334, 343, and 344 of FIG. 3, are not described in the specification. Accordingly, Replacement FIG. 3 has been enclosed herewith, in which FIG. 3 has been amended to remove these reference numbers. Therefore, it is respectfully requested that the objection to the drawings be withdrawn.

With regard to the Examiner's objection to the specification, the Examiner asserts that definitions of the terms "complementary code", "perfect complementary code", and "quasi-complementary code", which are critical and essential to the practice of the present invention, are not enabled by the disclosure. However, it is respectfully submitted that the Examiner is incorrect.

These terms are all used in the paragraph starting on page 5, line 16 of the specification, which reads as follows:

The present invention provides a QCTC generating method for a system using channel interleaving and a method of generating QCTCs in a predetermined way irrespective of a variable code length in a system requiring QCTCs with a variety of code rates. A QCTC is defined as a complementary code generated using a turbo code. The QCTC is not a perfect complementary code as noted from the term "quasi" because a sub-code includes repeated symbols and has a different characteristic such as error correcting capability from another sub-code.

It is respectfully submitted that a complementary code of a turbo code is known to one skilled in the art. Additionally, the paragraph above explains that the QCTC is referred to as such, since it is not a "perfect complementary code", which it is respectfully submitted is also known to one skilled in the art, because a sub-code includes repeated symbols and has a different characteristic from another sub-code. More specifically, it is respectfully submitted that the terms used to describe the QCTC, i.e., "complementary code" and "perfect complementary code", are known to one skilled in the art. Therefore, it is respectfully submitted the definition of QCTC in the specification is enabling *to one skilled in the art.*

Additionally, to supplement the Examiner's understanding of QCTCs and the related art, U.S. Patent No. 6,877,130 has been cited in an IDS filed herewith. It is respectfully submitted that this patent supports Applicants' position that QCTC and related terms cited above are known to one skilled in the art.

Accordingly, for at least the reason given above, it is respectfully requested that the objection to the specification be withdrawn.

With regard to the Examiner's rejection of Claims 9-13 and 17-21 under 35 U.S.C. §112, first paragraph, as not being enabling, the Examiner takes up the same issue with the terms "complementary code", "perfect complementary code", and "quasi-complementary code". However, as indicated above, it is respectfully submitted that the Examiner is incorrect, it is respectfully

submitted that these terms are known to one skilled in the art and would therefore be enabling within the disclosure of the application and the pending claims. Accordingly, it is respectfully submitted that the Examiner is incorrect with this rejection, and it is respectfully requested that this rejection be withdrawn.

Further, the Examiner asserts that Claims 10 and 18 are rejected because the term "partial bit reversal order (PBRO) interleaving" is not enabling. However, it is respectfully submitted that this method of interleaving is well known to one skilled in the art. Accordingly, it is respectfully submitted that the Examiner is incorrect with this rejection, and it is respectfully requested that this rejection be withdrawn.

With regard to the rejection of Claims 9-13 and 17-21 under 35 U.S.C. §112, second paragraph, as being incomplete, the Examiner asserts that that where Claim 9 recites "a QCTC generator for generating a sub-code of a QCTC", there is an omitted structural cooperative relationship between "a QCTC generator" and "a QCTC", and between "a sub-code of a QCTC" and "a QCTC". With regard to the Examiner's assertions concerning Claims 12, 20, and 13, i.e., that there is no structural cooperative relationship between the "symbol repeater" and the "QCTC generator", or between "serially concatenated symbol sequences" and the recursively selected "serially concatenated symbol sequence", it is respectfully submitted that the Examiner is incorrect, and that these claims are not incomplete to one skilled in the art, i.e., one skilled in the art would have no problem practicing the present invention as recited in these claims, without undue experimentation. . Accordingly, it is respectfully submitted that the Examiner is incorrect with this rejection, and it is respectfully requested that this rejection be withdrawn.

With regard to the rejection of Claims 9-13 and 17-21 under 35 U.S.C. §112, second paragraph, as being indefinite, the Examiner takes issue with the phrase "at a given starting position" in Claims 9 and 17. More specifically, the Examiner asserts that it is not clear how a predetermined number of symbols can be selected from a serially concatenated symbol sequence at a given position, because a starting symbol is only one symbol. However, it is respectfully submitted that this language is clear.

-7-

For example, if we have a symbol sequence of ten symbols, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and we are to select a predetermined number of symbols, e.g., four, at a given starting position of the symbol sequence, e.g., the third position/symbol, then symbols 3, 4, 5, and 6 would be selected.

Based on this example, which follows the language of Claims 9 and 17, it is respectfully submitted that the Examiner is incorrect with this rejection, and it is respectfully requested that this rejection be withdrawn.

Further, the Examiner asserts that it is not clear what "according to the coding rate" refers to in Claims 9 and 17. It is respectfully submitted that this means the given starting point is determined according to, *or based on*, the coding rate.

With regard to the rejections of independent Claims 9 and 17, the Examiner asserts that *Tong* teaches all the recitations of these claims. However, it is respectfully submitted that the Examiner is incorrect with this rejection.

First, Claims 9 and 17 recite an apparatus and method, respectively, for generating a QCTC and sub-codes of a QCTC. However, there is no disclosure in *Tong* for any of these recitations.

Additionally, the Examiner cites the selector 97 of *Tong* as performing both the multiplexing operations and the concatenation operations of Claims 9 and 17. However, *Tong* merely recites that the selector couples the channel interleaved bits accordingly. There is no disclosure in *Tong* that the selector generates a new parity symbol sequence by multiplexing the interleaved symbols of the corresponding parity symbol sequences, and serially concatenates the interleaved information symbol sequence and the new parity symbol sequence. Therefore, it is respectfully submitted that the Examiner is incorrect in rejecting Claims 9 and 17 as being anticipated by *Tong*, and it is respectfully requested that this rejection be withdrawn.

Finally, it is respectfully submitted that independent Claims 9 and 17 are in condition for

allowance. Without conceding the patentability per se of dependent Claims 10-13, and 18-21, they are likewise believed to be allowable by virtue of their dependence on Claims 9 and 17, respectively. Accordingly, reconsideration and withdrawal of the rejections of dependent Claims 10-13 and 18-21 are respectfully requested.

All of the remaining claims pending in the Application, namely, Claims 9-13 and 17-21, are believed to be in condition for allowance. Should the Examiner believe that a telephone conference or personal interview would facilitate resolution of any remaining matters, the Examiner may contact Applicants' attorney at the number given below.

Respectfully submitted,

Paul J. Farrell
Reg. No. 33,494
Attorney for Applicants

DILWORTH & BARRESE, LLP
333 Earle Ovington Blvd.
Uniondale, New York 11553
Tel: (516) 228-8484
Fax: (516) 228-8516

PJF/DMO/las